

# ARC-OVER

May, 2017 EDITION

## Repeater Stuff and Such

The Merced Lo-Level and the Buck Rock repeaters are complete and awaiting installation dates. The Buck Rock 440.300 + 94.8 pl system is operational in WB6BRU, Bobby Mooneyham's garage. Thanks to Dinnie Echols, N6TLW and Phil Barnhill, KC6QJQ who showed up and used the clubs man-lift to hang the Merced Lo-Level repeater antennas temporarily on Bobby's tower for test and burn in of the new Buck Rock Repeater... We are waiting for the Snow to Melt to gain access to Buck Rock and the Merced Lo-Level will be scheduled by the local facility manager.

Speaking of repeaters Sam Gardali K6ACR previous owner of Aircall in Turlock has sold the business and semi-retired in Napomo. He has offered the Turlock Amateur radio club four of his several Motorola DMR repeaters. One on Mt Oso, One lo-level in Turlock both UHF and two On Mt. Bullion one uhf and one vhf. He will write a letter to NARCC indicating donation of equipment and release of frequencies. We would then file application for those frequencies. Should be a smooth transition. The one on Oso would need to move from present location into the building where K6XIA-13 RMS station and the KJ6ART repeater is located. There is already a mesh network in place that will accommodate linking into the existing DMR network. The Turlock Lo-Level will possibly need to add a mesh node to pickup internet for linking in that Sam is currently paying for Internet. The two repeaters on Mt. Bullion have access to the Fire2wire internet already provided to the Club by a negotiated deal made with Elite.net the previous owner of the Internet company. Sam had monetary offers from a DMR group to the South of us, but elected to donate to TARC. If for any unimaginable reason we elect not to accept his gracious offer, let me assure you the John H Pitman Memorial Radio Society will be all over this like a Blue Jay on a June Bug. This is a very generous offer of several thousand dollars of equipment already installed in place and going...

Editor K6IXA



## **Motorola**

*Motorola is a household word as well known as Nabisco Shredded Wheat. Marge KB6DXM came up with the following story of the origin of the name...*

### **HISTORY OF THE CAR RADIO**

Seems like cars have always had radios, but they didn't.

Here's the story:

One evening, in 1929, two young men named William Lear and Elmer Wavering drove their girlfriends to a lookout point high above the Mississippi River town of Quincy, Illinois, to watch the sunset.

It was a romantic night to be sure, but one of the women observed that it would be even nicer if they could listen to music in the car. Lear and Wavering liked the idea. Both men had tinkered with radios (Lear served as a radio operator in the U.S. Navy during World War I) and it wasn't long before they were taking apart a home radio and trying to get it to work in a car.

But it wasn't easy: automobiles have ignition switches, generators, spark plugs, and other electrical equipment that generate noisy static interference, making it nearly impossible to listen to the radio when the engine was running.

One by one, Lear and Wavering identified and eliminated each source of electrical interference. When they finally got their radio to work, they took it to a radio convention in Chicago.

There they met Paul Galvin, owner of Galvin Manufacturing Corporation. He made a product called a "battery eliminator", a device that allowed battery-powered radios to run on household AC current. But as more homes were wired for electricity, more radio manufacturers made AC-powered radios.

Galvin needed a new product to manufacture. When he met Lear and Wavering at the radio convention, he found it. He believed that mass-produced, affordable car a huge business.

Lear and Wavering set up shop in Galvin's factory, and when they perfected their first radio, they installed it in his Studebaker.

Then Galvin went to a local banker to apply for a loan. Thinking it might sweeten the deal, he had his men install a radio in the banker's Packard. Good idea, but it didn't work ♦ Half an hour after the installation, the banker's Packard caught on fire. (They didn't get the loan.)

## Motorola (continued)

Galvin didn't give up. He drove his Studebaker nearly 800 miles to Atlantic City to show off the radio at the 1930 Radio Manufacturers Association convention. Too broke to afford a booth, he parked the car outside the convention hall and cranked up the radio so that passing conventioners could hear it. That idea worked -- He got enough orders to put the radio into production.

### WHAT'S IN A NAME

That first production model was called the 5T71.

Galvin decided he needed to come up with something a little catchier. In those days many companies in the phonograph and radio businesses used the suffix "ola" for their names - *Radiola*, *Columbiola*, and *Victrola* were three of the biggest. Galvin decided to do the same thing, and since his radio was intended for use in a motor vehicle, he decided to call it the Motorola.

But even with the name change, the radio still had problems: When Motorola went on sale in 1930, it cost about \$110 uninstalled, at a time when you could buy a brand-new car for \$650, and the country was sliding into the Great Depression. (By that measure, a radio for a new car would cost about \$3,000 today.)

In 1930, it took two men several days to put in a car radio -- The dashboard had to be taken apart so that the receiver and a single speaker could be installed, and the ceiling had to be cut open to install the antenna.

These early radios ran on their own batteries, not on the car battery, so holes had to be cut into the floorboard to accommodate them.

The installation manual had eight complete diagrams and 28 pages of instructions. Selling complicated car radios that cost 20 percent of the price of a brand-new car wouldn't have been easy in the best of times, let alone during the Great Depression ♦

Galvin lost money in 1930 and struggled for a couple of years after that. But things picked up in 1933 when Ford began offering Motorola's pre-installed at the factory.

In 1934 they got another boost when Galvin struck a deal with B.F. Goodrich tire company to sell and install them in its chain of tire stores.

By then the price of the radio, with installation included, had dropped to \$55. The Motorola car radio was off and running. (The name of the company would be officially changed from Galvin Manufacturing to "Motorola" in 1947.)

In the meantime, Galvin continued to develop new uses for car radios. In 1936, the same year that it introduced push-button tuning, it also introduced the Motorola Police Cruiser, a standard car radio that was factory preset to a single frequency to pick up police broadcasts.

## **Motorola (continued)**

**In 1940 he developed the first handheld two-way radio**

**-- The Handy-Talkie ♦ for the U. S. Army.**

**A lot of the communications technologies that we take for granted today were born in Motorola labs in the years that followed World War II.**

**In 1947 they came out with the first television for under \$200.**

**In 1956 the company introduced the world's first pager; in 1969 came the radio and television equipment that was used to televise Neil Armstrong's first steps on the Moon.**

**In 1973 it invented the world's first handheld cellular phone.**

**Today Motorola is one of the largest cell phone manufacturers in the world.**

**And it all started with the car radio.**

**WHATEVER HAPPENED TO the two men who installed the first radio in Paul Galvin's car?**

**Elmer Wavering and William Lear, ended up taking very different paths in life.**

**Wavering stayed with Motorola. In the 1950's he helped change the automobile experience again when he developed the first automotive alternator, replacing inefficient and unreliable generators. The invention lead to such luxuries as power windows, power seats, and, eventually, air-conditioning.**

**Lear also continued inventing. He holds more than 150 patents. Remember eight-track tape players? Lear invented that. But what he's really famous for are his contributions to the field of aviation. He invented radio direction finders for planes, aided in the invention of the autopilot, designed the first fully automatic aircraft landing system, and in 1963 introduced his most famous invention of all, the Lear Jet, the world's first mass-produced, affordable business jet.**

**(Not bad for a guy who dropped out of school after the eighth grade.)**

***Sometimes it is fun to find out how some of the many things that we take for granted actually came into being!***

**AND**

***It all started with a woman's suggestion!!***

# 'LOCK-N-STITCH'

Submitted by Mike Smith, KG6VFL

As I was waiting in the barbershop a few days ago, I was perusing the February edition of Popular Mechanics.

They have a small section called "How Your World Works". In that section they were discussing the recent exterior renovations of the White House Dome. Quoting from the article:

"In 1866, less than a year after Lincoln had been assassinated, at the dawn of Reconstruction, the dome was completed: nine million pounds of cast iron covered in Dome White paint, capped with a bronze statue called *Freedom Triumphant in War and Peace*."

"But the work goes on. Since the dome's last complete restoration, from 1959 to 1960, decades of abuse by rain, snow, and slow leaks degraded the cast iron, causing more than 1,000 feet of cracking to spiderweb across it. So in January 2014, under the direction of the Architect of the Capitol, the federal agency in charge of the maintenance and restoration of the Capitol complex, a team of companies and craftsmen from around the country began repairs."

Working "Behind a veil of more than one million pounds of scaffolding" highly qualified specialists used their skills to ensure the future of the Dome on our nation's capitol.

One such firm selected was Lock-N-Stitch, a Turlock company founded in 1990.

Lock-N-Stitch was asked to "Design a water-tight system to fill racks: Threaded metal pins pull the two pieces of cast iron together, then "locks" lay perpendicular to the repair to complete the "stitch."

"Jay Leno recently implemented its system to fix the engine block on his 1913 Christie fire engine."

"In 2013 the Architect of the Capitol nominated Lock-N-Stitch for a construction innovation award for its repair technology"

In 1990 Gary J Reed founded Lock-N-Stitch and began creating his patented processes to repair cracks in steel and cast iron objects. Wikipedia describes Lock-N-Stitch thusly:

Lock-N-Stitch Inc. is a company based out of [Turlock California](#) and founded by Gary J Reed in 1990. LOCK-N-STITCH Inc. specializes in **metal stitching**, which is a process where cracks in metal objects caused by stress are repaired. LOCK-N-STITCH process of metal stitching uses a series of locks and pins. A pin is a threaded bolt which can provide a pushing or a pulling pressure to the center of the pin. The pins are bolted down in a series along the crack then ground down to a smooth surface then another layer of pins are bolted down between the gaps of the previous pins then are ground down to make a smooth surface. The locks are a strip of metal with circular edges. The two locks are placed perpendicular to the crack and three are placed overlaying each other and then placed into the already driven holes.

## "LOCK-N-STITCH" (continued)

Here is a description of their Precision Metal Stitching (Metal Locking) Service. process as described on their web site:

"**LOCK-N-STITCH Inc.'s** proprietary, patented mechanical crack repair process "metal stitching" allows us to permanently repair a crack or blow-out hole without welding. The cracked metal is replaced with special metal stitching pins that we install by drilling and tapping to draw the sides of the crack together. This results in a continuous row of interlocking stitching pins to create a strong, pressure-tight repair. To restore the casting to its original strength, we install locks across the joint line of the pins by drilling a precision hole pattern with special drill fixtures. After the hole pattern is created, the locks are driven in, pulling the repair together even tighter.

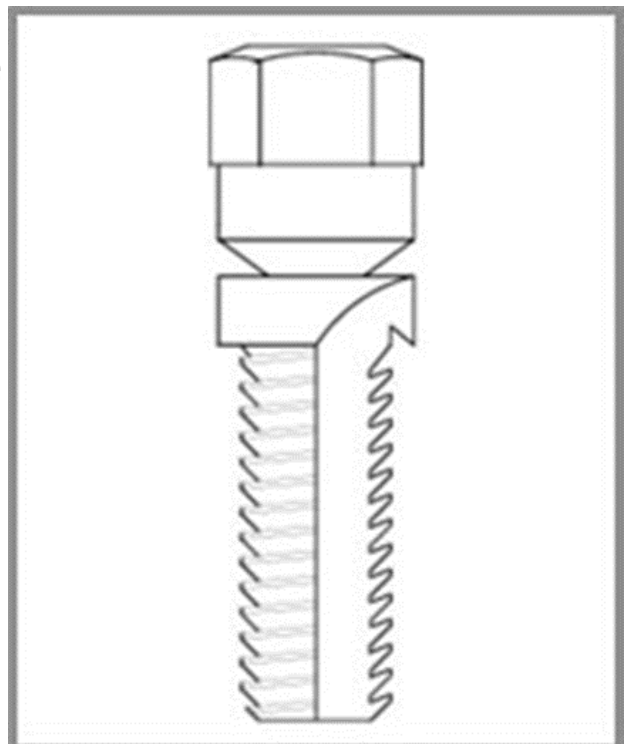
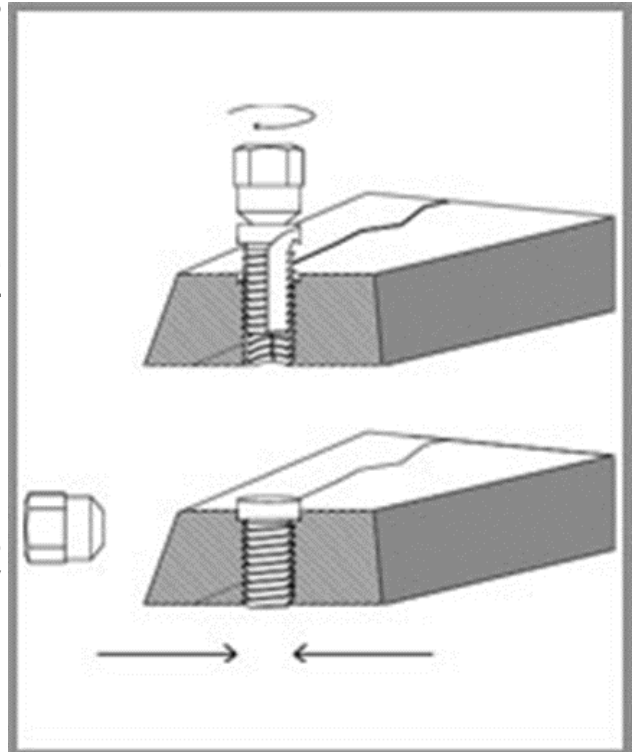
The repaired, metal-stitched area is gas and liquid tight to create a pressure tight repair. In addition, metal stitching Dampens and Absorbs Compression Stresses. It also spreads tensile strains and distributes the load away from the original failure point, while maintaining the alignment of the original surfaces."

"This metal stitching method is employed mostly on cast iron components, but it is also effective on any other machinable metal, such as ductile iron, steel, aluminum and bronze castings."

"If failed weld attempts damaged the metal, a repair may be possible after the affected area has been cut out so that a new piece can be "stitched" in. We can repair components with wall thicknesses from 3/16" to 12" and have the portable machining equipment required to handle difficult machining projects."

"**LOCK-N-STITCH Inc.** also offers in-house machining, non-destructive testing, manufacturing and thread repair services.

I say "Kudos to Mr. Reed and his crew!!  
Mike Smith, KG6VFL





## Red Monkey

These Snaps submitted by Dick Decker K6SUU, taken at the Red Monkey Swap meet in Fresno CA. Saturday 5-20-2017

Ken Stillwell KF6IDK, with excess garage valuables...



Manuel Miguel N6MTM, with Collins treasures for your consideration...



The assembled mob inspecting the various wares...



Bobby Mooneyham WB6BRU and Manuel Miguel N6MTM... NOW would you buy a used car from either of these guys ? Hmmm a radio MAYBE !

John Latronica KE6UCX, with his perennial collection of immaculately restored antiques for sale...





## Then And Now

Every now and then something shows up at one of our auctions that brings back fond memories of the past. Recently I ran across such an item stowed away in my garage acquired a few auctions ago from the estate of Charlie Harding K6SWW. It was a home made walkie talkie quite popular among TARC members back in the mid to late 50's... It was a single tube circuit board kit available for \$9.95 providing a 2 meter combined super regen receiver and modulated oscillator transmitter. Several of us built these inexpensive units typically in an Aircraft Radio GF-11 coil can. A telephone handset from a Western Electric 301 desk telephone was sacrificed to provide the ear piece and mike units for attachment to the case.

At that time TARC was involved providing communication for controlled burns in the Coulterville, Mariposa Areas and the single tube units worked very well for the short range communications needs. Charlie K6SWW, Max Sayre W6GYN, Ivan Lowe W6SKH and myself were all known to have constructed one of these units. \$9.95 seems somewhat like a pittance in todays economy. However if you are making \$52 a week at a relatively good paying job then that's a days wages. I guess it's all relative at that.

Anyway 145.35 Mhz was the local operating frequency in this part of the state. Perhaps because of the availability of 8075 khz crystals readily available at Standard Surplus on Market Street in San Francisco for 75 cents a piece used in the newly available Gonset Communicator 2 meter radios. I recall fond memories of early married days living at the corner of South Avenue and Mae Street in Turlock. I was known to have been seen frequently trudging down the street and climbing the ground observer tower left over from WWII located on the corner of South and West Avenues. One could be assured that George Stevens, K6SNA in Modesto would be listening. Turlock to Modesto on a single tube Walkie Talkie was considered to be a pretty good haul in those days. Granted the height advantage provided by the ground observer tower actually made it happen...

For you youngsters who have never heard the term "Ground Observer Tower", Check it out to find out what it's all about... <http://www.radomes.org/museum/documents/GOC/GOC.html>

### THEN



### NOW



K6IXA Editor

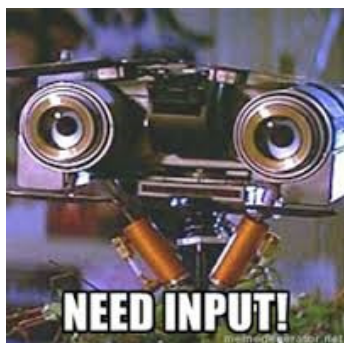


## Packet and Such

Thanks to Ken Stillwell the Area Packet conscience a substantial rework of the K6IXA-12 RMS node on Mt. Bullion is complete and showing a vast improvement in reliability... The original software was run in Atwater at K6IXA QTH utilizing a Ethernet to serial adapter at the Mt. Bullion in the old Sayer building where the node is co-located with the K6IXA Repeater/Remote installation. As long as the circuit was active all was well... However if the circuit sat idle for a period of time the IP assignment associated with the respective Mac addresses were released and went elsewhere in cyberspace. In an effort to minimize Internet participation the Software was installed on the Computer at W6BXN eliminating the link from Atwater to Mt. Bullion... This improved the situation, however did not completely eliminate the necessity of resetting the tnc from time to time... Ken bought a minicomputer with Windows 10 and shamed me into installing it... Best investment ever made... Now that the computer and tnc are co-located, there have been absolute no failures that we are aware of... The existing Kantronics 9612+ took a dump and had to be replaced... With the latest 9.1 firmware installed we were back in business... I was not totally aware of the perceived importance this location played in the 145.05 Mhz digital network until it became glaringly apparent when continually asked when are you going to get up there and fix the thing... Thanks again to Ken for the gentle nudging, pushing, whining a bit at times that made it all happen... For those not aware besides being a RMS node (K6IXA-12) for Winlink Email it also serves as a K-Node digi as K6IXA-5... The K-Node portion of the installation I leave to Al WB6YNM the recognized area packet ghru... He has gone in and tweaked the system for maximum efficiency and has it ticking like a fine watch... The guys in Northern California are now again able to connect to their southern counterparts in San Bernadino.

In that this upgrade works so well serious consideration is being made to install a minicomputer node at K6IXA-13 on Mt. Oso and K6IXA-11 on Bear Mt. near Orangevale East of Fresno... Thanks to all for their patience in getting things going again... Not an easy task with the roads all torn up on Mt. Bullion... Rich W6ABJ, Spencer and myself hurled ourselves on board Rich's rumbling 4x4 Ford diesel and jostled our way up the hill to make it all happen...

Whilst revamping the K6IXA-12 RMS we also took the time to connect the VOIP telephones into the PBX located on the Mesh network... Previous Telephone interconnect was derived from an Asterisk PBX at my home in Atwater... Not being conversant in Linux it has always been a bit touchy at best. When Spence did a couple point click operations and it was all done, I was sold... So now we have W6BXN ext 2420, K6IXA ext 2421 and W6HHD 2422 all working at the flick of the wrist... Thanks again guys for all the creative effort in establishing the mesh network with all it's bells and whistles.



If you have a certain passion relating to our fine Hobby please consider writing an article for the Arc-Over... With the diversity of our Hobby, most certainly there are aspects unfamiliar to some of us that would make a great topic for discussion... Give it some thought... No Pulitzer prizes will be awarded, but the appreciation of your grateful editor will surely be expressed...

Till then....

Grady K6IXA  
editor